1.12 Satellite radio laser ranging stations for GNSS application: requirements for technical characteristics and methods of their implementation

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The authors have examined basic problems of creating a new generation SLR station which performs both laser ranging and laser and radio pseudo-ranging to the GNSS spacecrafts.

The authors have explained basic means to achieve the following parameters of radio laser stations: accuracy and production rate of range and pseudo-range measurements in the interests of extended GNSS support as regards to monitoring and increase of ephemeris-and-time data accuracy, as well as implementation of a precision time transfer.

The authors have established a list of requirements for technical characteristics of the radio laser stations necessary to complete target measurement and functional tasks.

The authors have examined methods and technical means to achieve the above-mentioned requirements by the example of construction of the radio laser station «Tochka».

The authors have presented their ideas on how to use measurement data collected by the radio laser stations in the interests of GNSS support, time transfer systems, as well as of space geodesy and geodynamics.